

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application. Please cancel all claims indicated as (Canceled) without prejudice to or disclaimer of the subject matter therein. Currently amended claims are shown with additions underlined and deletions in strikethrough text. No new matter is added by this amendment.

Listing of Claims:

1-14 (Canceled).

~~15.~~ (Previously presented) An apparatus, comprising:

a rotatable member being rotatable about an axis;

a sensor coupled to said rotatable member, said sensor configured to send data associated with a rotation of said rotatable member to an electronic device having a plurality of selectively actuated functions, each of the selectively actuated functions being selectable based on a displacement of said rotatable member, the plurality of selectively actuated functions including at least one of controlling a volume for audio output, selecting at least one of a received broadcast station and a channel from multiple stations and channels, and scrolling through a list of possible selections; and

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an actuator coupled to said rotatable member, said actuator configured to output a haptic force sensation to said rotatable member, the haptic force sensation being associated with a selected one of the plurality of functions, the haptic force sensation associated with selecting at least one of the broadcast station and the channel including at least one of a detent sensation and a jolt sensation.

~~16.-38.~~ (Canceled).

~~39.~~ (Currently amended) The apparatus of claim ~~38~~¹⁵, wherein the detent sensation and the jolt sensation are associated with selection of particular stations and channels.

~~40.~~ (Previously presented) The apparatus of claim ~~39~~¹⁵, wherein the haptic force sensation associated with scrolling through a list of possible selections includes a spring return sensation.

~~41.~~ (Previously presented) The apparatus of claim ~~40~~¹⁵, wherein the scrolling is associated with an isometric control paradigm.

~~42.~~ (Currently amended) The apparatus of claim 15, wherein An apparatus, comprising:
a rotatable member being rotatable about an axis;
a sensor coupled to said rotatable member, said sensor configured to send data associated
with a rotation of said rotatable member to an electronic device having a plurality of selectively
actuated functions, each of the selectively actuated functions being selectable based on a
displacement of said rotatable member; and

an actuator coupled to said rotatable member, said actuator configured to output a haptic
force sensation to said rotatable member, the haptic force sensation being associated with a
selected one of the plurality of functions, the actuator is-being configured to be responsive to
isometric and isotonic interface paradigms.

~~43.~~ (Currently amended) The apparatus of claim 15, further comprising An apparatus,
comprising:

a rotatable member being rotatable about an axis;
a sensor coupled to said rotatable member, said sensor configured to send data associated
with a rotation of said rotatable member to an electronic device having a plurality of selectively
actuated functions, each of the selectively actuated functions being selectable based on a
displacement of said rotatable member;

an actuator coupled to said rotatable member, said actuator configured to output a haptic force sensation to said rotatable member, the haptic force sensation being associated with a selected one of the plurality of functions; and

a controller, the controller configured to assign at least one of a plurality of different levels of simulated inertia to said rotatable member, the assigned level of inertia based on the selected one of the plurality of selectively actuated functions.

~~7~~ 4. (Currently amended) ~~The apparatus of claim 15, further comprising~~ An apparatus, comprising:

a rotatable member being rotatable about an axis;
a sensor coupled to said rotatable member, said sensor configured to send data associated with a rotation of said rotatable member to an electronic device having a plurality of selectively actuated functions, each of the selectively actuated functions being selectable based on a displacement of said rotatable member;

an actuator coupled to said rotatable member, said actuator configured to output a haptic force sensation to said rotatable member, the haptic force sensation being associated with a selected one of the plurality of functions; and

a controller, the controller configured to selectively associate detents from a plurality of detents with said rotatable member, the selectively associated detents being associated with the selected one of the plurality of selectively actuated functions.

~~8~~ 5. (Currently amended) ~~The apparatus of claim 15, further comprising~~ An apparatus, comprising:

a rotatable member being rotatable about an axis;

a sensor coupled to said rotatable member, said sensor configured to send data associated with a rotation of said rotatable member to an electronic device having a plurality of selectively actuated functions, each of the selectively actuated functions being selectable based on a displacement of said rotatable member;

an actuator coupled to said rotatable member, said actuator configured to output a haptic force sensation to said rotatable member, the haptic force sensation being associated with a selected one of the plurality of functions; and

a controller, the controller configured to associate hard stops at predetermined locations within a range of travel of said rotatable member, the predetermined locations being associated with the selected one of the plurality of selectively actuated functions.

~~9.~~ (Currently amended) ~~The apparatus of claim 15, further comprising An apparatus, comprising:~~

a rotatable member being rotatable about an axis;

a sensor coupled to said rotatable member, said sensor configured to send data associated with a rotation of said rotatable member to an electronic device having a plurality of selectively actuated functions, each of the selectively actuated functions being selectable based on a displacement of said rotatable member;

an actuator coupled to said rotatable member, said actuator configured to output a haptic force sensation to said rotatable member, the haptic force sensation being associated with a selected one of the plurality of functions; and

a controller, the controller configured to associate different levels of simulated damping with said rotatable member, the associated level of simulated damping being associated with the selected one of the plurality of selectively actuated functions.

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11. (Currently amended) The apparatus of claim 15, further comprising An apparatus, comprising:

a rotatable member being rotatable about an axis;

a sensor coupled to said rotatable member, said sensor configured to send data associated with a rotation of said rotatable member to an electronic device having a plurality of selectively actuated functions, each of the selectively actuated functions being selectable based on a displacement of said rotatable member;

an actuator coupled to said rotatable member, said actuator configured to output a haptic force sensation to said rotatable member, the haptic force sensation being associated with a selected one of the plurality of functions; and

a controller, the controller configured to associate different levels of simulated friction to said rotatable member, the associated level of simulated friction being associated with the selected one of the plurality of selectively actuated functions.

Claims 48-74 (Canceled).

11. (Currently amended) A method, comprising:

sensing of a position of a rotatable member of an apparatus, the rotatable member being rotatable about an axis, the apparatus configured to send a position signal to at least one electronic device, the position signal associated with the position of the rotatable member;

outputting a haptic force sensation to the rotatable member via an actuator coupled to the rotatable member, the haptic force sensation associated with a selected one of a plurality of functions associated with the electronic device, the outputting the haptic force sensation associated with a selected one of the plurality of functions includes outputting the haptic force sensation associated with at least one of controlling a volume for audio output, selecting at least

one of a received broadcast station and a channel from multiple stations and channels, and scrolling through a list of selections, the outputting the haptic force sensation associated with scrolling through a list of selections includes outputting a spring return sensation; and sensing a displacement of the rotatable member to select the one of the plurality of functions.

76-80. (Canceled).

81. (Previously presentedCurrently amended) The method of claim 80~~75~~, wherein the outputting a spring return sensation is associated with an isometric control paradigm.

82. (Currently Amended) The method of claim 75, further comprising:
A method, comprising:

sensing of a position of a rotatable member of an apparatus, the rotatable member being rotatable about an axis, the apparatus configured to send a position signal to at least one electronic device, the position signal associated with the position of the rotatable member;

outputting a haptic force sensation to the rotatable member via an actuator coupled to the rotatable member, the haptic force sensation associated with a selected one of a plurality of functions associated with the electronic device;

sensing a displacement of the rotatable member to select the one of the plurality of functions; and

selecting a mode from one of an isotonic mode and an isometric mode of the rotatable member, the haptic force sensation output to the rotatable member being different depending on the selected mode.

~~83.~~ (Currently Amended) The method of claim 75, further comprising:A method, comprising:

sensing of a position of a rotatable member of an apparatus, the rotatable member being rotatable about an axis, the apparatus configured to send a position signal to at least one electronic device, the position signal associated with the position of the rotatable member;

outputting a haptic force sensation to the rotatable member via an actuator coupled to the rotatable member, the haptic force sensation associated with a selected one of a plurality of functions associated with the electronic device;

sensing a displacement of the rotatable member to select the one of the plurality of functions; and

associating detents with varied rotary spacing to the rotatable member, the associated detents being associated with the selected one of the plurality of functions.

~~15~~ ~~84.~~ (Currently Amended) The method of claim 75, further comprising:A method, comprising:

sensing of a position of a rotatable member of an apparatus, the rotatable member being rotatable about an axis, the apparatus configured to send a position signal to at least one electronic device, the position signal associated with the position of the rotatable member;

outputting a haptic force sensation to the rotatable member via an actuator coupled to the rotatable member, the haptic force sensation associated with a selected one of a plurality of functions associated with the electronic device;

sensing a displacement of the rotatable member to select the one of the plurality of functions; and

associating hard stops at different locations within a range of travel of the rotatable member, the locations associated with the selected one of the plurality of functions.

~~16.~~ (Currently Amended) ~~The method of claim 75, further comprising~~ A method, comprising:

sensing of a position of a rotatable member of an apparatus, the rotatable member being rotatable about an axis, the apparatus configured to send a position signal to at least one electronic device, the position signal associated with the position of the rotatable member;

outputting a haptic force sensation to the rotatable member via an actuator coupled to the rotatable member, the haptic force sensation associated with a selected one of a plurality of functions associated with the electronic device;

sensing a displacement of the rotatable member to select the one of the plurality of functions; and

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associating different levels of simulated damping to the rotatable member, the associated level of simulated damping associated with the selected one of the plurality of functions.

~~17.~~ (Canceled).

~~17.~~ (Currently Amended) ~~The method of claim 75, wherein~~ A method, comprising:

sensing of a position of a rotatable member of an apparatus, the rotatable member being rotatable about an axis, the apparatus configured to send a position signal to at least one electronic device, the position signal associated with the position of the rotatable member;

outputting a haptic force sensation to the rotatable member via an actuator coupled to the rotatable member, the haptic force sensation associated with a selected one of a plurality of functions associated with the electronic device, the haptic force sensation is-being associated

with an event occurring in a graphical environment implemented by the at least one electronic device; and

sensing a displacement of the rotatable member to select the one of the plurality of functions.

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(Previously presented) A handheld remote control apparatus, comprising:

a rotatable member being rotatable about an axis;

a sensor configured to send data associated with a rotation of the rotatable member to an electronic device having a plurality of selectively actuated functions, at least one of the selectively actuated functions includes selecting at least one of a broadcast station and a channel from multiple stations and channels; and

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an actuator configured to output a haptic force sensation to said rotatable member, said actuator being configured to associate the haptic force sensation with the selected one of the plurality of functions, the haptic force sensation including at least one of a detent and a jolt, the at least one of the detent and the jolt being spaced apart in the rotation of the rotatable member, the at least one of the detent and the jolt being associated with the selection of the at least one of the broadcast station and the channel.

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(Previously presented) The apparatus of claim 88, wherein said actuator is a passive actuator.

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(Previously presented) The apparatus of claim 88, wherein said actuator is an active actuator.

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(Previously presented) The apparatus of claim 88, wherein the sensor is configured to provide the data to the electronic device via wireless transmission using an electromagnetic beam.

Claims 92-97 (Canceled).

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~~98.~~ (Previously presented) The apparatus of claim ~~88~~, further comprising a processor configured to communicate with the actuator and configured to associate the haptic force sensation with the selected one of the plurality of functions, said processor configured to include selectable modes, the selectable modes including a selectable isotonic mode and a selectable isometric mode for said rotatable member, the haptic force sensation output to said rotatable member being different depending on which of the modes is selected.

99. (Canceled).

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~~100.~~ (Previously presented) The apparatus of claim ~~88~~, wherein said rotatable member is configured to be depressed, said rotatable member configured to select the selected one of the plurality of functions based on the depression.

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~~101.~~ (Previously presented) A handheld remote control apparatus, comprising:
a rotatable member being rotatable about an axis;
a sensor configured to send data associated with a rotation of the rotatable member to an electronic device, the electronic device having a plurality of selectively actuated functions, at least one of the selectively actuated functions includes scrolling through a list of selections; and
an actuator configured to output a haptic force sensation to said rotatable member, said actuator being configured to associate the haptic force sensation with the selected one of the plurality of functions, the haptic force sensation including an isometric control paradigm having a spring return sensation.

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102. (Currently amended) A handheld remote control apparatus, comprising:

a rotatable member being rotatable about an axis;

a sensor configured to send data associated with a rotation of the rotatable member to an electronic device, the electronic device having a plurality of selectively actuated functions; and

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an actuator configured to output a haptic force sensation to said rotatable member, said actuator being configured to associate the haptic force sensation with the selected one of the plurality of functions;

a processor configured to ~~associated~~ associate force detents having varied rotary spacing with said rotatable member by controlling said actuator, said associated rotary spacing being associated with the selected one of the plurality of functions.